

WHAT IS CLAIMED IS:

1. A printing system comprising a pod, a detachable printing device, a substrate, a positioner and a motion resistor, wherein:

the pod comprises a receptacle for reversibly attaching an attachment portion of the printing device;

the printing device comprises a reservoir containing a liquid comprising a predetermined agent and in fluid connection with the reservoir, a capillary comprising an axial bore having proximal and distal openings open to ambient pressure and a printing tip comprising the distal opening and which prints the agent on the substrate;

the positioner moves the pod relative to the substrate; and

the motion resistor is operatively joined to the capillary and providing an incomplete resistance to motion of the capillary along its longitudinal axis, biasing said motion toward the substrate, wherein the resistor is selected from a plurality of springs, an elastomeric membrane and the weight of the capillary, wherein the system prints by decelerating the capillary to move the agent through the bore, out the tip and onto the substrate.

2. The printing system of claim 1, wherein the resistor is the weight of the capillary.

3. The printing system of claim 1 wherein the printing device is one of a detachable ganged plurality of printing devices, each comprising a reservoir containing an agent unique to the reservoir and in fluid connection with the reservoir, a capillary having proximal and distal openings open to ambient pressure and a printing tip comprising the distal opening and which prints the agent on the substrate, wherein the pod comprises a receptacle for reversibly attaching an attachment portion of the printing devices.

4. The printing system of claim 1 wherein the printing device is one of a detachable ganged plurality of printing devices, each comprising a reservoir containing an agent unique to the reservoir and in fluid connection with the reservoir, a capillary having proximal and distal openings open to ambient pressure and a printing tip comprising the distal opening and which prints the agent on the substrate, wherein the pod comprises a receptacle for reversibly attaching an attachment portion of the printing devices, and the detachable ganged plurality is

of one-piece construction.

5. The printing system of claim 1 wherein the printing device is one of a detachable
ganged plurality of printing devices, each comprising a reservoir containing an agent unique
5 to the reservoir and in fluid connection with the reservoir, a capillary having proximal and
distal openings open to ambient pressure and a printing tip comprising the distal opening and
which prints the agent on the substrate, wherein the pod comprises a receptacle for reversibly
attaching an attachment portion of the printing devices, and the detachable ganged plurality
comprises a block having receptacles for and which laterally constrain each of the printing
10 devices.

6. The printing system of claim 1 wherein the printing device is one of a detachable
ganged plurality of printing devices, each comprising a reservoir containing an agent unique
15 to the reservoir and in fluid connection with the reservoir, a capillary having proximal and
distal openings open to ambient pressure and a printing tip comprising the distal opening and
which prints the agent on the substrate, wherein the pod comprises a receptacle for reversibly
attaching an attachment portion of the printing devices, and the detachable ganged plurality
comprises a rigid or elastomeric band or clamp to gang together the printing devices.

20 7. The printing system of claim 1, wherein the bore tapers toward the distal opening of
the tip.

8. The printing system of claim 1, wherein the printing device comprises a wire bonding
capillary.

25 9. The printing system of claim 1, wherein the agent is a polynucleotide or polypeptide.

10. The printing system of claim 1, wherein the substrate provides a surface offering
differential surface chemistry or topography.

30 11. The printing system of claim 1, wherein the substrate provides a surface offering

differential surface chemistry or topography, which provide predetermined printing sites adapted to receiving, binding, reacting, containing or retaining the agent or liquid.

12. The printing system of claim 1, wherein the substrate is selected from the group consisting of glass, ceramic, plastic, metal, silicon, acetate and cellulose.

13. The printing system of claim 1, wherein the printing device further comprises a non-capillary chamber also containing the liquid and having a relatively larger internal diameter than and in fluid connection with the capillary.

14. The printing system of claim 1 further comprising a register comprising a guide which contacts a registration portion of the printing device, distal to the attachment portion, and moves the tip relative to the substrate.

15. The printing system of claim 1, further comprising a preservation device within, containing or in contact with the printing device, which preserves the capability of the printing device to print the agent on the substrate over long-term storage of the printing device, wherein the preservation device comprises a deterrent to evaporation of the liquid, wherein the deterrent is selected from the group consisting of a hermetic barrier, a refrigerator, a humidifier and a hygroscopic agent,

16. The printing system of claim 1, further comprising a preservation device within, containing or in contact with the printing device, which preserves the capability of the printing device to print the agent on the substrate over long-term storage of the printing device, wherein the preservation device comprises a deterrent to evaporation of the liquid, wherein the deterrent is a hermetic barrier.

17. The printing system of claim 1, wherein the resistor is the weight of the capillary, and wherein the printing device is one of a detachable ganged plurality of printing devices, each comprising a reservoir containing an agent unique to the reservoir and in fluid connection with the reservoir, a capillary having proximal and distal openings open to

ambient pressure and a printing tip comprising the distal opening and which prints the agent on the substrate, wherein the pod comprises a receptacle for reversibly attaching an attachment portion of the printing devices, and the detachable ganged plurality comprises a block having receptacles for and which laterally constrain each of the printing devices.

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18. The printing system of claim 1, wherein the resistor is the weight of the capillary, wherein the printing device is one of a detachable ganged plurality of printing devices, each comprising a reservoir containing an agent unique to the reservoir and in fluid connection with the reservoir, a capillary having proximal and distal openings open to ambient pressure and a printing tip comprising the distal opening and which prints the agent on the substrate, wherein the pod comprises a receptacle for reversibly attaching an attachment portion of the printing devices, and the detachable ganged plurality comprises a block having receptacles for and which laterally constrain each of the printing devices, wherein the printing devices comprise wire bonding capillaries.

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19. The printing system of claim 1, wherein the resistor is the weight of the capillary, wherein the printing device is one of a detachable ganged plurality of printing devices, each comprising a reservoir containing an agent unique to the reservoir and in fluid connection with the reservoir, a capillary having proximal and distal openings open to ambient pressure and a printing tip comprising the distal opening and which prints the agent on the substrate, wherein the pod comprises a receptacle for reversibly attaching an attachment portion of the printing devices, and the detachable ganged plurality comprises a block having receptacles for and which laterally constrain each of the printing devices, wherein the printing devices comprise wire bonding capillaries, wherein the agent is a polynucleotide at least 50 nucleotides in length and the substrate is glass.

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20. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 1 by decelerating the capillary to move the agent through the bore, out the tip and onto the substrate.

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21. A method for printing an agent on a substrate comprising the step of printing an agent

with the printing system of claim 2 by decelerating the capillary to move the agent through the bore, out the tip and onto the substrate.

22. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 3 by decelerating the capillary to move the agent through the bore, out the tip and onto the substrate.

23. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 5 by decelerating the capillary to move the agent through the bore, out the tip and onto the substrate.

24. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 8 by decelerating the capillary to move the agent through the bore, out the tip and onto the substrate.

25. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 9 by decelerating the capillary to move the agent through the bore, out the tip and onto the substrate.

26. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 14 by decelerating the capillary to move the agent through the bore, out the tip and onto the substrate.

27. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 16 by decelerating the capillary to move the agent through the bore, out the tip and onto the substrate.

28. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 18 by decelerating the capillary to move the agent through the bore, out the tip and onto the substrate.

29. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 19 by decelerating the capillary to move the agent through the bore, out the tip and onto the substrate.